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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BERKO, RETFORD O	

ART UNIT	PAPER NUMBER
1615	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/072,320	Applicant(s) MUMPER ET AL.	
	Examin r Retford Berko	Art Unit 1615	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *33-47 and 51-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) *48-54* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Acknowledgement: *Receipt of Information Disclosure Statement filed March 31, 2003 is acknowledged.*

Restriction/Election

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

a) "the wax-film composite of claim 33, wherein the molecule of interest is amlexanox"

b) "the wax-film composite of claim 33, wherein the molecule of interest is triclosan"

c) "the wax-film composite of claim 33, wherein the molecule of interest is lodocaine, benzocaine, or dyclonine"

d) "the wax-film composite of claim 33, wherein the molecule of interest is a peptide or protein"

(e) the wax-film composite of claim 33, wherein the molecule of interest is at least one benzodiazepine drug or derivative thereof"

(f) "the wax-film composite of claim 33, wherein the molecule of interest is hirudin or hirudin complexed with a substance of opposite charge"

(g)"the wax-film composite of claim 53, wherein said substance of opposite charge is chitosan or protamine"

(h) "the wax-film composite of claim 33, wherein the molecule of interest is plasmid DNA or plasmid DNA complexed with a substance of opposite charge such as chitosan, protamine, or a cationic lipid".

2. In a telephone conversation, applicant was requested, as mandated by 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be

restricted if no generic claim is finally held to be allowable. Currently, a claim for a "wax-film composite" is generic.

During the telephone conversation with Attorney Michael C. Barrett on January 5, 2004, applicant elected without traverse prosecution for claim 51--reciting "the wax-film composite of claim 33, wherein the molecule of interest is a protein or peptide".

Therefore, claims 48, 49, 50; and claims 52, 53, 54, 55, 59, 60, 61 and 62 are withdrawn from consideration in this office action.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 46 recites the limitation "the wax-film composite of claim 33, wherein the molecule of interest is contained in and released from either the pH-sensitive mucoadhesive layer

or the water-insoluble wax layer" in claim 35. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because in the claim, applicant refers to the phrase "and at least one molecule of interest". The phrase is indefinite because it does not specify the chemical nature of the molecule(s) or the number of such molecules involved. The rejection may be overcome when applicant defines specifically what molecule(s) and the numbers involved in the claim.

6. Claims 46, 47, 51, 56, 57 and 58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for improperly referring to claim 33 instead of claim 35. In claims, reference is made of the phrase "wherein the molecule of interest is---". Because the phrase first appears in claim 35 not in claim 33, the claims 46, 47, 51, 56, 57 and 58 are rendered indefinite. The rejection may be overcome when the term "claim 33" in claims 46-58 is changed to "claim 35" in order to make the reference to the phrase "wherein the molecule of interest is---" proper.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 35, 37 and 56 are rejected under 35 U.S.C. 102 (b) as anticipated by Eckenhoff et al (US 4, 959,218).

According to applicant, claim 1 is a wax-film composite comprised of pH-sensitive mucoadhesive layer and water-insoluble wax layer.

9. It is generally known in the art that several bioadhesive, and specifically mucoadhesive, polymers are currently used in pharmaceutical preparations, including carboxymethylcellulose (CMC), hydroxypropymethylcellulose (HPMC), polyacrylic acid and their derivatives, pectin, alginic acid, chitosan, polyvinylpyrrolidone, hyaluronic acid and polyvinylalcohol. It is also generally known in the art that the most frequently used mucoadhesive polymer is Carbopol (Carbomer), which is a high molecular weight polyacrylic acid polymer.

10. Eckenhoff et al (Patent '218) teach a drug delivery device adapted to take several forms, shapes and forms for delivering medicaments to subcutaneous spaces in an animal or human, e.g. buccal, cervical, oral sites (col 7, lin 15-25).

The material used for the delivery device in Patent '218 is Carbopol (Carbomer) or other water swellable polymers (col 11, lin 25-60) having functional groups such as hydroxyl or carboxyl groups (col 7, lin 50-60 and col 8, lin 40) as well as polyelectrolyte complexes (col 11, lin 40-45)---these functional groups and complexes render the polymer layers pH-sensitive. Patent '218 teach examples of the drug delivery device wherein the device has outer layer or wall and inner layer or wall (col 16, lin 25-40).

11. Patent '218 also teaches that the delivery device has wax layer (col 15, lin 10-15).

12. Patent '218 teaches that the disclosed wax-film composite at least one medicament, e.g. anti-inflammatory compound, protein drug, peptides (col 10, lin 30-45).

13. Patent '218 teaches a wax-film composite wherein the mucoadhesive is made of Carpopol (Carbomer); col 11, lin 55. Therefore, claims 1, 35, 37 and 56 are anticipated by Eckenhoff et al (Patent '218).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 34-47, 51, and 56-58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eckenhoff et al (US 4, 959, 218) over Biegajski et al (US 5, 700, 478).

16. As was discussed above, Patent '218 teach a drug delivery device adapted to take several forms, shapes and forms for delivering medicaments to subcutaneous spaces in an animal or human, e.g. buccal, cervical, oral sites (col 7, lin 15-25). Patent '218 teach examples of the drug delivery device wherein the device has outer layer or wall and inner layer or wall (col 16, lin 25-40). Patent '218 also teaches that the delivery device has wax layer (col 15, lin 10-15). Patent '218 teaches that the disclosed wax-film composite at least one medicament (col 10, lin 30-45). Finally, Patent '218 teaches a wax-film composite wherein the mucoadhesive is made of Carpopol (Carbomer); col 11, lin 55.

17. Patent '218 does not teach the use of polyacrylic acid cross-linked with polyalkenyl ether or divinyl glycol as the material for making the wax-film composite. Patent '218 does not teach wt% or amounts of the ingredient polymers, physical parameters such as melting point of wax,

the thickness of the wax-film and the release time for the delivery device to deliver the active compound to the site of application in the body.

18. Biegajski et al (Patent '478) teaches double layered, mucoadhesive drug delivery device wherein the adhesive layer and the second polymer layer contain the drug to be delivered (abstract, col 35 lin 30). Patent '478 is suggestive that a wax can be used as suitable layer (col 4, lin 35). Patent '478 teaches the use of Eudragit polymethacrylate copolymers (col 22, lin 15) and Carbopol 934 (col 28, lin 40-45) for making the adhesive layer for the drug delivery device and the wt% of polymer components (col 8, lin 50). Patent '478 teaches wax-film composite wherein the mucoadhesive layer is a copolymer of methacrylic acid esters with diethylaminoethyl methacrylate (col 33, lin 55-60). Patent '478 teaches the melting temperature of the wax (col 9, lin 10; col 10, lin 55 and col 34, lin 35), the use of polyvinyl pyrrolidone or polyvinyl alcohol polymer (col 28, lin 40). Patent '478 teaches that adherence of the wax-film composite to the mucosal site lasts beyond one hour (col 5, lin 25 and col 6, lin 30).

19. Given that applicant indicates in the specification that a plethora of different and suitable pH-sensitive mucoadhesives are currently on the market (specification, page 25) compounded with the fact that applicant provides examples of wax-film formulations in which Carbomer (Carbopol), Noveon or Eudragit polymers are used as the material for making the mucoadhesive wax-film (specification, pages 26-31); examiner takes the position that the limitation in claim 36—that the wax film is constructed of polymer made of polyacrylic acid cross-linked with polyalkenyl ether with divinyl glycol is a suitable variation of the plethora of suitable polymers that can be used for making the wax-film.

20. One of ordinary skill would have been motivated to make mucoadhesive drug delivery device using polyacrylic acid cross-linked with polyalkenyl ether or divinyl glycol as the material for making the wax-film composite, giving wt% or amounts of the ingredient polymers, physical parameters such as melting point of wax, the thickness of the wax-film and the release time for the delivery device to deliver the active substance in a time more than 1 hr as claimed by applicant. One of ordinary skill would have expected to obtain effective drug delivery of beneficial agents through the subcutaneous space over time. Therefore the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time it was made.

Correspondence

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Retford Berko whose telephone number is 571-272-0590. The examiner can normally be reached on M-F at 8:00 a.m.-5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on 571-272-0602. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-9903 for regular communications and 703-746-9903 for After Final communications.

An inquiry of a general nature or relating to the status of this communication or proceeding should be directed to the receptionist whose telephone number is 703-308-1243.

THURMAN K. PAGE
SUPERVISORY PATENT EXAMINER
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